

CLINICAL REMARKS ON SARCINÆ IN THE URINE FOR FIFTEEN YEARS, WITHOUT ACCIDENTS.

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The chief importance of the first case here given is in indicating the small degree of gravity attaching to the mere discovery of sarcinæ in the urine. When one comes across a rarity of this kind, the exact significance or cause of which is not as yet known, there is apt to be considerable anxiety as to what the future developments of the case may be. Although the records hitherto point to the occurrence of sarcinæ in the urine as being, in itself, free from danger, any extra security in this sense will be welcomed by those who may have to advise on the matter. The period which has now elapsed since the first detection of the sarcinæ in this case, without urinary accidents supervening, is greater, so far as I know, than any hitherto recorded.

A gentleman, aged about 57, who was well known to me, consulted me about some trivial ailment, but, in case of there being any latent disease, I thought it well to examine the urine for albumen and sugar, and I found both absent. The specific gravity was 1025. I noticed that the urine was turbid on being passed, and as it was acid in reaction, I was curious to know the cause. Much to my surprise, I found the whitish flocculent-looking sediment which had formed to consist of sarcinæ. A few triple phosphates were also present. The sarcinæ were smaller than those with which we are familiar in vomited matter, and they were free from the brown colour so often seen there. This was on October 9th, 1876. On October 13th, the freshly-passed urine was again found to be turbid, with minute shreds visible in the urine glass; even before it settled, the microscope revealed, in a drop of the urine, the same small sarcinæ as before; the minute shreds were found to consist of white cells and epithelium; the specific gravity was 1025; the reaction was acid as before. A fortnight later, this same specimen was found to contain sarcinæ, although the urine had become, of course, quite alkaline; triple phosphates were abundant. Specimens were shown as curiosities at a *conversazione* of the Glasgow Pathological and Clinical Society held about that time.

Curious to trace the history of the case, without alarming the gentleman, I took a casual opportunity of examining the urine in February, 1877; it was slightly turbid when passed, and sarcinæ were at once found without even waiting for a sediment to form. The reaction was again acid; and, as before, no albumen could be detected.

No opportunity occurred for ascertaining the continuance of the sarcinæ till I had a chance in March, 1891. The gentleman was then about 71 or 72 years old, but still very active. The urine was turbid, as before, on being passed in the afternoon. It was not examined till next morning, when a loose whitish sediment was seen; the reaction then was alkaline, and numerous triple phosphates were seen; enormous numbers of sarcinæ were found, small and pale as before; many were in simple groups of four, but some aggregations of many such groups were likewise seen. There were no pus cells visible, and no albumen or sugar could be detected in the urine.

A sample of this was given to Dr. R. M. Buchanan, at the Pathological Laboratory of the Western Infirmary, and he tried cultivations in various media, but failed to obtain any results. He measured the size of the growths, and made them to be 1 micro-millimetre or a little more.

On special inquiry as to any urinary symptoms, it seems that as a boy the patient had retained urine too long on one occasion, and he seems to have had some swelling at the external organs at that time. About 1851, he was troubled with some urinary irritation, with frequent micturition. Dr. S.

Clark, in Glasgow, passed a catheter once at that time, the use of which was followed by the appearance of a little blood. Shortly afterwards he went to consult Professor Syme, in Edinburgh, who sounded him for stone, but none was found. These were the only occasions when instruments were passed into the bladder. The irritability of bladder continued for a year or two, but then ceased to be seriously troublesome, and there was absolutely no pain; a certain nervous anxiety about passing urine continued ever since, showing itself especially if he were in such a position, in a church or otherwise, where exit was difficult. With care in securing an easy retreat, the necessity seldom arose. He had usually to get up to micturate about 4 A.M.; during the day he might pass water every two hours or so. No blood had ever been passed, so far as known, except on the occasion of the catheter being used. His general health had been excellent all his life.

His report in March, 1891, when over 71 years old, was that his health was good, and that he was fit for much active exertion. The urinary symptoms, instead of getting worse with advancing years, had improved, and he could now sit through long services in the church without anxiety as to his bladder.

The only other case of sarcinæ in the urine which I have recognised in my private or hospital practice occurred lately. A married lady was found to have a small quantity of pus in her urine habitually; occasionally the urine became clear, but with an aggravation of her symptoms; there was some tenderness in the left loin, without tumour; all this suggested the presence of a slight pyelitis. I saw her first in September, 1890, and on examining the urinary sediment was surprised to find with the pus numerous sarcinæ in one or two specimens kept for me. They had not been detected before, although the urine had been repeatedly examined. Mixed up as they were with pus corpuscles, they had evidently been missed. When seen again, in March, 1891, the sarcinæ were still present, mixed with the pus as before. As in the other case, the size was small and the colour pale. Specimens given to Dr. R. M. Buchanan for cultivation experiments again failed to show any results.

The history in this case was that about three years ago, when 26 years old, she had her first baby, and about the first week afterwards suffered from retention of urine, with overdistension of the bladder, requiring the use of the catheter for a week. She had a rigor about the fourteenth day, and had then pain on micturition, and a pelvic abscess was feared. Pus appeared in the urine at that time, and has been present ever since, usually in very small quantity. The course of the symptoms made it almost certain that pyelitis and not pelvic abscess was the cause of the rigor. Throughout the case no blood has been seen, and no albumen could be recognised on testing. The urine is often acid, sometimes neutral; oxalates have been frequently seen.

Since her illness she has had a second baby without either aggravation or amelioration of her symptoms, which consist of pain in the back and a sense of exhaustion, varied occasionally by the occurrence of a febrile attack, with more severe pain. When seen by me in March, 1891, she was supposed to be again pregnant. Her appearance did not suggest any grave disease, and she was able to perform her household duties.

In this case the gravity of the condition clearly turns on the pus and on the pyelitis, and not on the sarcinæ.

In both cases, the fact of instruments having been passed into the bladder at one time is very suggestive of contamination from this cause, particularly in view of the considerable proportion of recorded cases of urinary sarcinæ having a similar history of catheterisation.¹

¹ Falkenheim: "Ueber Sarcinæ," *Archiv f. experimentelle Pathol.*, Bd. 19, Leipzig, 1885.

DR. ROBERT T. HERRON has been elected, by a large majority, medical officer of Armagh Workhouse, and consulting sanitary officer in the room of the late Dr. Henry Frazer.

M. JULES JANET has been commissioned by the French Government to study the organisation and practical working of the clinics of urinary diseases in Austria and Switzerland.

PROFESSOR E. LUDWIG has been elected Dean of the Medical Faculty of the University of Vienna for the academical year 1891-92.

LECTURES

ON

GOITRE: ITS PATHOLOGY, DIAGNOSIS,
AND SURGICAL TREATMENT.*Delivered at the Royal College of Surgeons of England.*

By JAMES BERRY, B.S., F.R.C.S.,

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LECTURE III.

Cystic Goitre.—Varieties. Treatment. Tapping.—Injection.—Drainage.—Intraglandular Enucleation, Advantages of: Cases Suitable for.—Question of Recurrence.—Extirpation.—Fibro-adenomatous Goitre.—Malignant Goitre.—Exophthalmic Goitre.—Complications and Results of Removal of Non-malignant Goitre.—Hæmorrhage.—Injury to Recurrent Nerve, Sympathetic, Vagus, Trachea, Pleura.—Collapse of Trachea.—Sepsis.—Tetany.—Cachexia Strumipriva.—Symptoms.—Relation to Complete and Partial Removal.—Prognosis.—Treatment.

[THE different varieties of cystic goitre were briefly described and illustrated by specimens. The treatment by simple tapping, by injection, and by drainage was discussed, and the dangers of each method were described.]

I come next to intraglandular enucleation, and in discussing this subject I propose to consider at the same time enucleation of solid tumours of the gland, since the same operation is in many cases suitable for them also. By enucleation is meant the removal of a cystic or a solid tumour from the interior of the thyroid gland, the surrounding glandular tissues being left intact. Enucleation of cysts appears to have been performed as long ago as 1840 by Porta, of Pavia.¹ Billroth, too, more than twenty years ago practised a similar operation. More recently it has been recommended and practised with success by Julliard, of Geneva, and Kottmann, of Soleure. Burckhardt, of Stuttgart, and Müller, of Tübingen, have also written upon enucleation of cystic goitres. Solid tumours of the thyroid gland were, however, rarely treated in this way until Professor Socin, of Basle, some ten or fifteen years ago, began to practise enucleation upon these also. Dr. Keser, of Vevey, has contributed materially to our knowledge of the operation by the publication of an excellent monograph² upon the subject. He gives full details of 37 enucleations performed by Professor Socin; of these, 17 were for cystic and 20 for solid tumours. Dr. Garré³ has also warmly advocated this proceeding.

The operation of enucleation depends for its feasibility upon the following anatomical facts. Many goitrous tumours consist, not of an enlargement of the whole of one or both lobes of the gland, but of a circumscribed tumour lying in more or less healthy gland tissue. Sometimes the tumour is a cyst, unilocular or multilocular; sometimes it is solid, of a fibro-adenomatous nature, like the corresponding tumours which are found in the breast and other organs. Of whatever nature, the tumour is surrounded by a well-marked capsule, composed of connective tissue and of thyroid tissue, altered and atrophied by pressure. It is owing to the existence of this capsule that enucleation can be performed, the tumour alone being shelled out without interference with the remainder of the gland. The nature of the capsule surrounding the goitrous tumour varies according to the size and position of the latter. If this be small and deep-seated it may be surrounded by what is obviously, to the naked eye, thyroid tissue. If, on the other hand, the tumour be large and project much, it may be covered on its superficial aspect by what appears at first sight to be merely connective tissue, but which is really a capsule, composed partly of connective and partly of

thyroid tissue. Both Keser and Koehér insist strongly on this point that the capsule is composed everywhere of thyroid tissue, the presence of which can be demonstrated by means of the microscope.⁴

Keser gives the following directions for the performance of the operation. The incision should be made over that part of the tumour which seems most superficial, and where the capsule of gland tissue is thinnest. The proper wall of the tumour will generally be recognised by its bluish-grey colour, contrasting with the reddish brown of the gland. The hæmorrhage produced by incising this glandular tissue is seldom alarming, and, with intelligent assistance, can readily be controlled. As soon as the incision has reached the tumour the latter has to be extracted from its parenchymatous bed. In the majority of cases the tumour has only slight connections with its glandular covering, so that it can be dislodged and removed in the space of a few minutes, or even seconds, by the fingers alone, without the help of any cutting instrument and without serious hæmorrhage. If the tumour has previously been punctured or injected, then adhesions are apt to be found between the tumour and its covering. When there are several distinct tumours they may sometimes be removed through one incision in the gland, or it may be necessary to make two.

Keser lays great stress on the importance of thoroughly arresting all hæmorrhage before closing the wound. He recommends that catgut should be used to sew up separately the capsule, the muscles, and the skin.

Keser and Socin believe that enucleation may be practised in most cases of goitre. The exceptions, not suitable for enucleation, according to Keser, are:

1. Cases of diffuse hypertrophy, in which the whole gland is uniformly enlarged.
2. Malignant goitre (carcinoma and sarcoma).
3. Goitre in which, besides one or more large nodules which appear to call for surgical treatment, numerous small nodules are disseminated throughout the gland. In such cases it is highly probable that, after removal of the larger tumour, the smaller ones would continue to grow; while to remove all by enucleation would be impossible. Among the total number of 37 enucleations performed by Socin, and published by Keser, no death occurred. Zesas⁵, writing in 1889, records 57 enucleations performed by Niehans at Berne, with only one death. Vignard⁶ has recorded two successful enucleations performed by Terrillon. Mr. Charters Symonds⁷ has recently published several cases of enucleation of thyroid cysts and adenomata. The wounds healed by first intention in all cases.

The advantages of enucleation claimed by Keser are:—

1. The operation is not followed by cachexia strumipriva or tetany.
2. Paralysis of the vocal cords from injury to the recurrent nerves cannot occur, since the nerves are in no way interfered with.
3. No large vessels are cut, and hæmorrhage, therefore, is never serious. Keser admits, however, that bleeding may be pretty free, although it can always be readily controlled.
4. As regards healing of the wound, the operation is not inferior to any other.
5. The operation can be performed rapidly.
6. The results from the æsthetic point of view are excellent, as there is not the unsightly hollow in the neck that is seen after extirpation.

Koehér⁸ discusses fully the relative advantages and disadvantages of enucleation. He admits that it is an excellent operation for many cases, but does not think that it is so widely applicable as do Socin, Garré, and Keser. His chief objections to it are that he has often found the hæmorrhage troublesome, and that recurrence of the goitre is much more likely to follow. This question of recurrence of the goitre after operation is one of considerable importance. Of Socin's patients upon whom partial extirpation had been performed, Keser saw eleven subsequently; among them he found five

⁴ It is important that this capsule of the tumour should not be confounded with the capsule of the gland itself.

⁵ Weltere fünfzig Kropfexcisionen. *Arch. f. klin. Chir.* xxxix. p. 526.

⁶ *Progrès Méd.*, Paris, 1888, 2, s. viii. p. 249.

⁷ *Trans. Clin. Soc.*, 1890, p. 51.

⁸ Bericht über weitere 250 Kropfexstirpationen, *Corr. Bl. f. Schw. Aerzte*, Basle, 1889, xix, 1, 33.

¹ *Nelle Mulattelli et delle Operazioni della Ghiandola Tiroidea*. Luigi Porta, Milan, 1849.

² *L'Enucleation ou Extirpation Intraglandulaire du Goitre Parenchymateux*. Samuel Keser, Paris, 1887.

³ Zur Frage der Kropfexstirpation mit Bemerkungen über Cachexia strumipriva. C. Garré. *Corresp. Bl. f. Schw. Aerzte*, Basle, 1886, p. 592.

in whom there had been some return of goitre. On the other hand, out of twenty-one cases of enucleation, in only three was any recurrence observed. But Keser admits, however, that in a certain number of these the operation had been performed only a short time before the publication of the report. He concludes that, as far as recurrence is concerned, enucleation is as good as partial extirpation. Kocher's opinion upon this point is more guarded; he says that sufficient time has not yet elapsed to enable us to judge of the comparative frequency of recurrence after enucleation. He goes on to say: "If one-half of a thyroid gland be removed, there is no question about a return of the disease on this side. If, however, enucleation be performed upon a growing goitre—and it is mainly in such cases that operation is desirable—then it is only a question of how and when the recurrence will take place. It is only in exceptional cases that recurrence will not occur; these are cases of single, chiefly large, tumours which have ceased to grow or which increase in size owing to degenerative changes, such as the accumulation of blood or other fluids, or those which by their pressure have caused atrophy of the remaining glandular tissue."

The cases in which, according to Kocher—with whom I fully agree—enucleation should be performed, are:

1. Cystic goitres in which most of the tumour is formed by a single cyst. When the cysts are scattered throughout the gland, extirpation is a more suitable operation. Isolated cysts of whatever size may, however, be enucleated; for some of the very large cysts resection is preferable. Whether the wall of the cyst be thick or thin, whether the contents be serous or composed of blood, whether inspissated, or liquid, are matters of no importance; enucleation may be performed in all these cases. Some cases of inflamed cyst may also be treated advantageously by enucleation, since in its early stages inflammation may loosen the cyst to a certain extent from its bed and facilitate enucleation.

2. Isolated large solid tumours which lie imbedded in comparatively healthy gland tissue. But in these cases enucleation is recommended only if the tumours are of sufficiently firm consistence and are loosely imbedded, so that they may be removed quickly and without severe hæmorrhage.

CASE IV. *Large Unilateral Cystic Goitre: Dyspnoea and Hoarseness: Enucleation: Complete Recovery.*—H. S., aged 64, came under my care in June, 1890. For many years he had had a large cyst in the left lobe of the thyroid gland; lately this had increased considerably in size, and caused so much dyspnoea and hoarseness that he had been unable to follow any occupation. An incision was made down to the cyst wall, which was easily recognised, and the tumour was enucleated in the course of a few minutes by means of a common flat hernia director. I took care to keep close to the cyst wall, and did not injure any of the surrounding thyroid tissue. There was so little bleeding that no ligatures were applied to the surface of the cavity from which the cyst had been removed. The wound was dressed in the usual manner described in my last lecture. The subsequent progress of the case was perfectly satisfactory. The temperature remained practically normal, only once reaching the height of 99.4°. On the fourth day after the operation the wound was soundly healed. On the fifth day the patient got up, and on the ninth he left the hospital in perfectly good health, and completely relieved of all his trouble. Since that time he has remained quite well, and has had no return of the goitre. The scar is a fine linear one, and is now, seventeen months after the operation, hardly visible.

[The subject of extirpation of cysts, together with the whole or a part of one lobe of the gland, was then briefly discussed, and the following case cited.]

CASE V. *Large, Chiefly Unilateral, Cystic Goitre: Dyspnoea: Extirpation of the Right Lobe of the Gland: Complete Recovery.*—Mrs. C., aged 40, kindly sent to me by Dr. C. P. White, of Sloane Street. For twenty years she had had a goitre; it had gradually increased in size, and had lately caused much trouble in breathing. The right lobe of the thyroid gland contained a globular cyst somewhat larger than an orange. On October 21st, 1890, an incision was made down to the cyst wall, and an attempt at first made to enucleate the cyst. But the connections with the rest of the gland were so intimate that the attempt was quickly abandoned, and extirpation of the whole right lobe was performed in the usual manner. The

operation presented no especial difficulty. The subsequent progress of the case was perfectly satisfactory; the drainage tube and sutures were removed on the third day after the operation. On the sixth day the patient got up. When the dressings were removed on the eighth day the wound was soundly healed. The highest temperature after the operation was 99.4°. The patient left the hospital on the fourteenth day, perfectly well. I have seen her from time to time since, and she has remained quite free from trouble; the left lobe has grown somewhat larger, but has not caused any inconvenience.

Fibro-adenomatous Goitre.—I come now to the third variety of goitre. Under this heading I include all those kinds of goitre in which fibrous tissue predominates. Sometimes the goitre consists mainly of one or more distinct fibro-adenomatous tumours embedded in the gland; sometimes a whole lobe of the gland, or even the whole gland itself becomes more or less converted into a dense mass of fibrous tissue, in which one or more encapsuled solid tumours or cysts may or may not be imbedded. The treatment of these encapsuled tumours has already been described under enucleation. The subject of extirpation, too, has already been dealt with in Lecture II., so that there remains but little to add to what has been said before. It is evident that, from the solid nature of these goitres, it is useless to expect that any treatment other than removal, either by enucleation or by extirpation, will be of any use. If one or more distinctly encapsuled tumours exist in a gland that is otherwise fairly healthy, then they will probably be treated with advantage by enucleation. If the whole lobe be affected, then extirpation is the best operation. The following case is one in which I extirpated a very large solid goitre, the largest goitre that it has yet fallen to my lot to remove.

CASE VI.—*Large Dense Unilateral Fibro-adenomatous Goitre: Dyspnoea: Extirpation: Complete Recovery.*—Miss K. C., aged 42, kindly sent to me by Mr. Thomas Smith. For many years she had had an enlargement of the right lobe of the thyroid gland; this had displaced and compressed the trachea to such an extent that the patient's condition was a very miserable one, and on more than one occasion attacks of dyspnoea had nearly proved fatal. The condition before operation is shown in Figures 5 and 6. On May 19th, 1890, the tumour, which comprised the whole of the right thyroid lobe, was extirpated in the manner fully described in my last lecture. On the fourth day the wound was soundly healed throughout, and the patient was allowed to get up. No complication of any kind occurred; the temperature was never higher than 99.4°. The patient returned to her home in the country in less than a fortnight after the operation, and has remained perfectly well ever since. The condition after the operation is shown in Fig. 7; the tumour after removal weighed nineteen ounces; it was solid throughout, and consisted largely of fibrous tissue.

[Malignant disease of the thyroid was next discussed. The different varieties were briefly described, and the opinion expressed that removal of the disease should very rarely be attempted. The lecturer had himself seen nine cases of malignant disease of this organ, but in none of them did he consider that any operation other than tracheotomy was justifiable. Reasons for this view were given. A short account of the operations that had been performed for exophthalmic goitre was also given. The results that had been obtained by the removal of innocent goitre were next discussed. Reference was made to the excellent results that had been obtained by Professor Kocher. His last published series of operations for the removal of goitre comprised 250 consecutive cases, of which only 6 died—a mortality of 2.4 per cent.; but, if 25 cases of malignant disease and exophthalmic goitre were excluded, only 2 deaths occurred among the remaining 225 cases—a mortality of 0.8 per cent. Results nearly as good had been obtained by Niehans and others. The complications of the operation and the after-results were then considered.]

Sudden death has often occurred during the operation, generally from dyspnoea, hæmorrhage, or shock. Sometimes death occurs at the very beginning of the operation, either just before or just after the first incision has been made. I have already published one such case which occurred to myself. The patient, an elderly woman, whose goitre had caused many very severe paroxysms of dyspnoea, died suddenly im-

mediately after the first incision through the skin had been made.

Hæmorrhage has been a frequent source of death, although less often now than formerly. I have unfortunately to record, from my own practice, the two following cases in which I lost patients chiefly from this cause. These two deaths are, however, the only ones that have occurred to me during or after any operation for goitre with the exception of the case just mentioned.

CASE VII. Bilateral Fibro-adenomatous Goitre: Much Dyspnoea: Extirpation of Right Lobe: Death from Hæmorrhage and Shock.—M. W., aged 43. For five years she had had a goitre, which had grown steadily, and had lately caused much dyspnoea. Dysphonia and dysphagia had also recently supervened. The right lobe of the gland was about as large as a man's fist, very hard and very much more fixed than goitres usually are. Extirpation of the right lobe was performed. The operation was rendered very difficult by the fact that the tumour could not be lifted up and turned over in the usual way. The operation lasted an hour, and the patient lost a great deal

When the tumour had been removed, a ragged piece of capsule was noticed hanging down into the wound. This I snipped off with seissors, but in doing so I made a great mistake. No bleeding occurred at the time, and the wound was wiped dry and then closed. A few hours later venous hæmorrhage took place into the wound, suddenly filling it with blood, and pressing upon the trachea so much that the patient died of suffocation before the house-surgeon could do anything to relieve her. *Post mortem* it was found that the seissors had made a small hole in one of the large inferior thyroid veins, but this hole had remained closed until some exertion on the part of the patient had caused it to open.

[Other complications of thyroidectomy were then mentioned, including injuries to various arteries and veins, to the recurrent laryngeal, sympathetic and vagus nerves, and to the trachea and pleura. The great importance of keeping the wound aseptic was insisted upon, and the frequently fatal results of suppuration in the wound were described.]

Tetany and tetano-epilepsy are serious complications that have occurred in a good many cases. Liebrecht mentions



Fig. 5.—Miss K. C. before operation; the goitre involves the right lobe only.

of blood. She died on the following day from shock. The tumour consisted of dense fibrous tissue with small portions of gland tissue imbedded in it. I was fully aware before commencing this operation that it would probably be one of considerable difficulty on account of the fixity of the tumour, but the rapid increase of the tumour and the dyspnoea decided me to attempt removal.

CASE VIII. Cystic Goitre: Removal: Death from Asphyxia caused by Recurrent Hæmorrhage into the Wound.—K. L., aged 30. She had had a goitre for three years. In the last few months it had increased considerably in size, and she had had dyspnoea upon exertion. Both lobes were enlarged, the right consisting chiefly of a single cyst. An attempt was made to perform enucleation but had to be abandoned, as the cyst was not sufficiently definitely encapsuled; extirpation of the right lobe was performed. The operation presented no especial difficulty, and did not take long; very little bleeding occurred.



Fig. 6.—Side view of the preceding.

seven cases that occurred in the practice of Albert, Billroth, and Schoenborn. Weiss,⁹ Reverdin,¹⁰ Kocher, Szumann, Schramm, and Hieguet¹¹ have all recorded cases. Most of them occurred in women after total extirpation. In some of the cases the symptoms appeared immediately after the operation, in others not until several days had elapsed.

Cachexia strumipriva is one of the most important remote results of thyroidectomy. By this term we mean a peculiar condition of body and sometimes of mind, which may be produced by removal of the thyroid gland. The attention of surgeons had not until 1883 been drawn to this remarkable affection, and its recognition has naturally had a great effect in modifying the views formerly held with regard to the operation of thyroidectomy. The symptoms are too well known to require any detailed description here.

⁹ *Samml. Klin. Vorträge*, No. 189.

¹⁰ *Journal de la Suisse Romande*, 1883.

¹¹ *Bull. d. l'Acad. de Méd. Belg.*, xvii.

A large mass of facts relating to the disease has been collected by the committee appointed by the Clinical Society to investigate the subject of myxoedema. Sixty-nine cases of cachexia strumipriva have been recorded in the report published by this committee. To these may be added eight cases recorded by Zesas from the practice of Niehans. Two questions seem to me worthy of discussion: 1. Does total extirpation of a goitre always cause cachexia strumipriva? 2. Does partial extirpation ever cause this disease?

With regard to the first question, it is a little difficult to give a decided affirmative answer, because it is not easy to be certain in any given case whether total extirpation has or has not been performed. The committee of the Clinical Society have collected 277 cases in which total extirpation is reported to have been performed on account of innocent goitre. In 22 of these cases, some recurrence of the goitre occurred, showing either that a portion of the gland had been accidentally left behind, or that an accessory thyroid gland was present. Deducting these we get 255 cases, and of these patients 69 became affected with cachexia strumipriva, and 186 did not, that is, about 1 in 4 was affected. Now, if in

made by a good surgeon, how much more likely that in other cases some small piece of gland may escape detection and be left behind? Very frequently re-enlargement of the remaining small portion of the gland takes place and proves that the extirpation was not complete. This was actually observed in 22 out of the 277 cases above mentioned. Probably in a considerable number of other cases the same occurrence took place, but was not looked for or observed. The following case bears out this point. About four years ago, a case was reported in a medical journal of "total extirpation" of a goitre, and it was stated that the patient was in good health two years afterwards, and that no cachexia strumipriva had occurred. Having obtained the address of this patient, I went to see her, and then learnt the following facts, which were unknown to the surgeon who had published the case. First, that since the patient left the hospital two years before, her neck had never been examined, and it was therefore somewhat rash to state definitely that there had been no return of goitre. As a matter of fact, a few weeks after the operation a small lump had appeared in the neck, and had continued to grow until at the end of two years, when I first



Fig. 7.—The same patient thirteen days after complete removal of the right lobe.

these 186 cases the whole thyroid gland was really removed and cachexia strumipriva did not occur, then the answer to the first question must clearly be No. But for myself, I fully agree with Dr. Felix Semon in expressing grave doubts as to the reality of the total excision in these 186 cases. It is so easy for a surgeon to imagine that he has completely removed a goitre and yet to find afterwards that he has left a portion behind. It is especially easy for a surgeon, inexperienced in these operations, to mistake a tumour of the thyroid gland for an enlargement of the whole gland.

Not long ago a case of removal of a large goitre was reported in a medical journal in this country: the surgeon, a good surgeon too, believed that he had removed the whole gland; but it was afterwards proved by recurrence of the disease that he had removed only one lobe, and that the whole of the other lobe had been left behind. If such a mistake can be



Fig. 8.—Middle-aged woman with well marked cachexia strumipriva eleven years after complete removal of a goitrous thyroid gland.

saw the patient, it had attained the size of a walnut. It was clearly either a portion of the original goitre which had undergone hypertrophy, or an enlarged accessory thyroid gland. Secondly, for many months after the operation the patient had suffered from symptoms of cachexia strumipriva; she had been extremely anæmic and apathetic, and unable to do any work. Eventually she regained her health completely. I ought to add that I have been informed that this case was at first reported to the committee of the Clinical Society as one in which total excision had not been followed by cachexia strumipriva. It is not so described in the report, a further communication having been made to the committee, stating the subsequent history of the case.

The enlargement of the portion left behind after partial removal of goitre is not always certain to occur, although it usually does. I will mention another case bearing upon this

point. A few years ago I saw a man whose thyroid gland had been, I was told, completely removed on account of goitre. He was in good health at the time, and I could find no trace of goitre in his neck. This case appears in the report of the committee as one of total extirpation without cachexia strumipriva. But I have seen a photograph of the patient before operation, and I have seen the tumour that was removed, and both point strongly towards the conclusion that the case was one of removal of a tumour of the thyroid, not of the whole organ.

Now, if I know of two cases like these, which have been published as examples of total extirpation without cachexia strumipriva, how many more similar ones may there not be of which I have no knowledge? To say definitely, then, without *post-mortem* evidence that a thyroid gland has been completely removed is, to my mind, well-nigh impossible. Even experienced operators (I mean experienced in operations upon goitre), such as Reverdin and Kocher, speak with a certain amount of hesitation as to the completeness of some of the removals performed by them. They say, however—at least, Reverdin does, and I think Kocher too—that they have had under their care many cases in which, at the time of operation, the whole gland has apparently been removed, that these cases subsequently never showed any sign of return of goitre, and that, notwithstanding, no cachexia strumipriva occurred.

The conclusion, then, at which we may arrive is that if the gland be completely removed there is a very great risk that cachexia strumipriva will supervene, although it is not absolutely certain that it will do so in all cases. The risk, however, is sufficiently great to warrant us in laying down the law that complete extirpation of a goitrous thyroid gland should never be performed.

Leaving, for the present, the subject of total excisions, let us turn now to the much more numerous cases in which a portion only of the organ has been removed. We have to consider the question whether cachexia strumipriva ever follows partial removal of the gland, and also the changes that occur in that portion of the gland that has been left behind. With regard to the first point, the answer to be given is unfortunately Yes; cachexia strumipriva has in some few cases followed partial removal. But the cases in which this has happened are exceedingly few in number, and in them the symptoms of the disease have usually been slight and temporary. The Committee of the Clinical Society state that out of more than 550 cases of partial thyroidectomy, only six presented symptoms of cachexia strumipriva. Zesas, in his last report, mentions two cases in which slight symptoms occurred after partial removal. Bircher has also recorded several, and I can add one unpublished case that I have myself seen, to which allusion has already been made. In some of these cases the symptoms gradually passed off after a few months; in others they persisted for several years; in one only, so far as I know, did death occur. In some of them, possibly in all, there was good reason to believe either that the portion of gland left behind was very small, or that it had undergone degeneration. Kocher's case I myself had the opportunity of seeing. In this, one-half of the thyroid gland had been removed, when it was noticed, too late, that the remaining half was atrophied. No compensatory hypertrophy occurred, and typical symptoms of cachexia strumipriva had set in when I saw the patient a year after the operation.

In discussing division of the isthmus I stated the fact that when a portion of the gland has been removed the remainder is often found to undergo a remarkable shrinking. This has led some surgeons to believe that an atrophy occurs. This diminution in size is in many cases merely temporary, and is due to the escape of the colloid contents from the goitre.¹² If the patient be kept under observation for some weeks or months after the operation, it will often be found that there occurs a gradual re-enlargement of the piece of gland that has remained—that is, if the cause that originally produced the goitre continues to act. And not only will this lobe or part of the gland regain its original size, but it will frequently do more than this—it will become hypertrophied. So common is this hypertrophy that it may often be considered as a test of complete or incomplete removal. For if any part of the

gland have been left behind, it will, in young subjects at any rate, usually enlarge and form a tumour easily detected by palpation.

The next point to which we turn our attention is, Does it matter which part of the gland be left behind in order to avoid cachexia strumipriva? In other words, is there any part of the gland the removal of which is especially likely to cause the disease?

In many partial thyroidectomies the portion removed is a tumour of the gland; in these cases, probably very little of the actual thyroid tissue itself is removed. From whatever part of the gland such tumours are removed, no cachexia strumipriva follows. In cases in which the whole gland is diseased, it also does not seem to matter which part of the gland be removed. Thus, speaking only of the cases which have come under my own observation, in some the right half of the gland had been removed, in others the left; in one case the whole gland except the isthmus had been removed; others were the exact converse, the isthmus having been removed, and all other parts left; finally, in many other cases, the whole gland had been removed with the exception of a small piece in various situations, or an accessory thyroid gland alone had been removed. Yet in these cases cachexia strumipriva did not occur. From these facts we may conclude that it is immaterial which portion of the gland be left behind.

With regard to prognosis, Kocher seems to think that the disease always progresses towards a fatal termination. Horsley, from his experiments on dogs and monkeys, has arrived at a somewhat similar conclusion. Reverdin, on the other hand, takes a less gloomy view, believing that many cases recover completely, and that in others a marked improvement may occur. With regard to the disease as it is seen in man, it seems to me to be pretty clear that, although it is certainly very serious, and may in some cases end in death, yet in a considerable proportion of cases life may continue for many years, and complete recovery may occasionally occur. The latter event is especially likely to happen in those ill-marked cases which followed partial extirpation.

In the *Transactions of the Pathological Society* for 1890 I have published a photograph of an extreme case that I saw at Berne; it illustrates the last stage of the disease. The patient lay helplessly in bed, taking little or no notice of what was going on around her; she was quite unable to feed herself or make known her wants. Although the face still presented some swelling, yet every other part of the body was greatly emaciated. She eventually died about four years after the removal of the goitre. In other cases the course of the disease has, however, been different. Fig. 8 was taken from a woman whom I saw at East Linton, in Scotland. The thyroid gland had been completely extirpated eleven years previously. The patient was in fairly good health when I saw her, but she eventually died of cerebral hæmorrhage twelve years and a half after the operation.¹³

In another case that I saw at Geneva, five years after total extirpation of a goitre, the disease, although accompanied by serious anæmia and respiratory troubles, had not caused any diminution of intelligence. The patient's health was improving, and there was no evidence to show that life was likely to be much shortened. In other cases that have come under my observation several years after operation, the symptoms had improved to such an extent that the patients, so far from being in a state of complete imbecility, were able to follow outdoor and other occupations.

It remains only for me to say a few words concerning the treatment of cachexia strumipriva. This has been extremely unsatisfactory. The most important point seems to be to keep the patient warm. Horsley showed that he could keep his animals alive much longer if he kept them warm. Chilliness is a prominent feature in cachexia strumipriva, as in myxedema. I would suggest, then, that great care should be taken to keep patients with cachexia strumipriva as warm as possible. Let them be dressed warmly with plenty of flannel. If they can afford to do so, let them be sent to some warm climate.

Pilocarpin, jaborandi, and nitro-glycerine seem to have

¹² For an excellent account of this case, by Dr. James Gordon, see *Lancet*, 1886, ii, 65.

¹³ See an excellent example reported by me in the *Transactions of the Pathological Society*, 1890.

proved of service in the treatment of myxœdema, and would probably also be of use in cachexia strumipriva.

It has been suggested that transplantation of thyroid tissue into the patient might do good. On January 19th, 1889, Dr. Bircher, of Aaran,¹⁴ transplanted a portion of tolerably normal thyroid tissue into the abdominal cavity of a patient suffering from cachexia strumipriva. The patient was much benefited, and was able to return to work. Three months later it was evident that the transplanted piece of thyroid had atrophied, as the disease again showed itself and progressed. A second transplantation was made again, and again an improvement—and this time a greater—is said to have resulted, as the patient recovered for nine months. The symptoms then recurred slightly, but the beneficial effect of the operation was, according to Mr. Horsley, indubitably established. Professor Kocher informed Mr. Horsley that as long ago as 1883 he had attempted to obtain the same results by transplanting a small portion of the gland freshly excised from a goitre, but the piece of transplanted gland was soon absorbed.

In 1889 Professor Kocher took up the subject again by transplanting, in two cases, the half of a thyroid gland into the abdomen, fixing it to the wall by sutures. In both the gland was "aseptically exfoliated" after a time. In three cases he put the gland loose in the abdominal cavity. The results of these cases have, I believe, not yet been published, but it is said that one patient has already considerably improved since the operation. Mr. Horsley has suggested that similar operations should be attempted for idiopathic myxœdema. At least two attempts of this kind have been made in this country by Mr. Hurry Fenwick and Dr. W. J. Collins, who have transplanted sheep's thyroids under the breasts of patients suffering from myxœdema. Both these gentlemen have very kindly sent me notes of their cases. In Mr. Fenwick's case the operation was done under very disadvantageous circumstances, when the patient was in the very last stage of the disease. Although some temporary improvement seems to have occurred, yet the patient did not recover, but died two days afterwards. In Dr. Collins's case the whole of a sheep's thyroid, weighing some 6 or 8 ounces, was transplanted. The wound healed without any trouble, and the patient is now, nine weeks after the operation, alive and well, but Dr. Collins tells me he is doubtful whether any improvements that have been noticed in the condition of the patient are substantial or likely to be permanent.

The information that we have, therefore, on the subject of transplantation of thyroid tissue, although not very encouraging, is, I think, on the whole, sufficient to warrant us in giving the operation a further trial before concluding definitely that it is a failure.

[At the close of the lectures several patients were exhibited from whom goitres had been removed by the lecturer.]

THE SURGICAL TREATMENT OF CARCINOMA OF THE STOMACH AND INTESTINES.¹

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The object of this paper is to give my views and experience of the best method of treating surgically carcinoma of the stomach and intestines.

Carcinoma of the Stomach.—The stomach may be attacked either at the cardiac end, the body, or the pyloric orifice by carcinoma, and different forms of operative treatment have been practised when the disease exists in each one of these situations. When the disease is situated at the cardiac end or body of the viscus, it is obvious that the only operation that is available to relieve the patient is either to remove the disease, if possible, and unite the cut edges, or to open the canal below the seat of the disease and establish a fistulous opening through which the patient can be fed. On the other hand, if the disease is situated at the pyloric outlet, it may be removed, or a communication may be established between the stomach and jejunum, thereby short-circuiting the passage of

food and preventing it passing over and irritating the diseased surface, or these two operations may be continued.

The operations may be classified thus: 1, Gastrostomy; 2, jejunostomy; 3, excision of the disease; 4, Bernay's operation of curetting the disease; 5, pylorotomy; 6, combined pylorotomy and gastro-enterostomy; 7, gastro-enterostomy.

The preparation of the patient is much the same in all these operations; only such nourishment as can be readily assimilated should be given by the mouth, and if the disease is situated at the pyloric orifice the stomach should be kept washed out with some antiseptic solution; I use salicylate of soda and water, 20 per cent. The patient should in all cases be fed by nutritive enemata and suppositories. I always give an enema of brandy and beef-tea just before the operation, and I am in the habit of placing the patient on hot water cushions during the operation.

Abdominal Incision.—This again applies to all the operations under consideration. In Fig. 1 will be seen the different

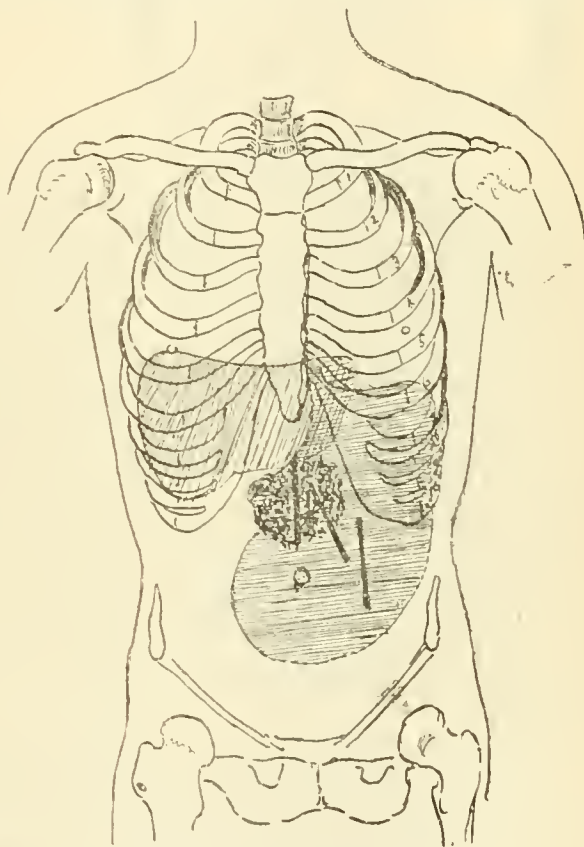


Fig. 1.—Showing different incisions adopted in pylorotomy and gastro-enterostomy.

situations in which the incision may be made. If the growth is small and the object of the surgeon is to excise the disease, or in cases of gastrostomy, jejunostomy, pylorotomy, and certain cases of gastro-enterostomy, the median incision is the most convenient. If the growth is at the pylorus, fixed, and so large as to extend over to the left of the middle line, as shown in the figure, the stomach being much dilated, then the operation of gastro-enterostomy is the only available operation, and the incision over the left linea semilunaris will be found to be the best. Billroth has recommended the third or oblique incision, but excepting for gastrostomy, I have no liking for it. The advantages of the incision in the left linea semilunaris are that the dilated stomach is more readily turned up and the origin of the jejunum is directly under the incision.

Gastrostomy and Jejunostomy.—In performing these opera-

¹⁴ Horsley, BRITISH MEDICAL JOURNAL, 1890, ii, 201.

¹ Being a summary of a paper read at the meeting of the British Medical Association at Birmingham, July, 1890.